

III. *Descriptions of new Species of Aculeate Hymenoptera, collected at Panama by R. W. STRETCH, Esq., with a List of described Species, and the various Localities where they have previously occurred.* By FREDERICK SMITH, Esq., President of the Entomological Society of London.

[Read March 4th, 1861.]

THE Collection of *Hymenoptera*, described in the following paper, was most liberally presented to me by Mr. Stretch. I need scarcely add, that this has greatly enhanced the pleasure which has attended the working out and describing of the species. A peculiar interest is attached to the *Hymenoptera* of Panama, forming, as it does, an intermediate station between North and South America. Amongst the *Vespidæ* will be found species common to both countries; and the capture of *Cryptocerus atratus* shows the known range of that species to be over an extent of country of not less than two thousand two hundred geographical miles.

The collection of specimens was accompanied by a number of very interesting examples of nests of *Formicidæ* and *Vespidæ*, and also by several valuable notes on the economy of some of the species. This is the first collection of *Hymenoptera* which I have seen from Panama, and will add greatly to our knowledge of the geographical distribution of species.

Family FORMICIDÆ, Leach.

Genus FORMICA, Linn.

1. *Formica arborea*, Smith, Cat. Hym. pt. vi. (*Formicidæ*), p. 44, 148.

Hab. Brazil; Island of Morago.

2. *Formica sericeiventris*, Guér. Voy. de la Coq. Zool. ii. 205 ♂.

Hab. Rio Janeiro; Columbia; Mexico.

Formica albo-fasciata.

F. fusco-nigra, abdomine albo-fasciato; pedibus articulationibus pallide testaceis.

Worker. Length $2\frac{3}{4}$ lines. Of a brownish black; the abdomen shining black, with a broad white fascia at the base of the second segment, not continued beneath; the head oblong, nearly of equal

width before the eyes and narrowed behind them; a central carina on the clypeus; the mandibles ferruginous; the extreme base of the scape, the trochanters and tips of the coxæ pale testaceous; the tarsi pale ferruginous. The scale of the peduncle incrassate, its side view wedge-shaped; its superior margin rounded; the abdomen sprinkled with pale hairs.

Formica striata.

F. nigra nitida; antennis pedibusque rufo-testaceis; thorace antice delicatule striato.

Worker. Length $1\frac{1}{2}$ lines. Shining black; the head and abdomen smooth and impunctate; the thorax finely striated longitudinally above, the sides striated, the striæ curving round the posterior portion of the metathorax; the antennæ and legs rufo-testaceous; the base of the scape, the coxæ and trochanters pale testaceous. Abdomen ovate; the scale of the peduncle incrassate, its superior margin rounded.

Formica simillima.

F. nigra, nitida; thorace subtus, metathorace femoribusque ferrugineis; abdomine subnitido, basi ferrugineis.

Female. Length $6\frac{1}{4}$ lines. Shining black; the apical joints of the antennæ rufo-testaceous beneath. The thorax beneath, the coxæ, trochanters and femora, as well as the metathorax and scale of the peduncle, ferruginous; the apical joints of the tarsi ferruginous. Abdomen sub-opaque, the base ferruginous; the apical margins of the segments ciliated with pale fulvous hairs.

This species very closely resembles the *F. ligniperda* of Europe, the principal difference in it appears to be that the scale of the peduncle is evenly arched above, not inclining to a point as in the European insect.

Formica corusca.

F. fusco-ferruginea, sericeo micans; scapo pedibusque ferrugineis.

Worker. Length 3 lines. Dark ferruginous, with patches of glittering silky pile, changeable and only visible in certain lights; the abdomen thinly sprinkled with glittering pale erect hairs. The anterior part of the head, mandibles, cheeks and scape of the antennæ bright ferruginous; the head oblong, rather narrowed in front; the eyes round and rather prominent; the clypeus with a central longitudinal carina. The thorax oblong, narrowed pos-

teriorly and rounded in front. Abdomen oblong-ovate, the scale of the peduncle incrassate, its superior margin rounded.

Genus TAPINOMA, Foerst.

Tapinoma instabilis.

T. nigro-fusca, cinerascenti micans; pedum articulis tarsisque pallidis; squama depressa.

Worker. Length $1\frac{3}{4}$ lines. Brown-black, with the anterior half of the head, or sometimes the entire head, rufo-testaceous; shining and having a thin sericeous pilosity; the head heart-shaped, the eyes placed rather forwards and inwards; the antennæ inserted rather wide apart; the flagellum slightly thickened towards the apex. The thorax narrowed posteriorly, the metathorax oblique, with the scale of the peduncle inclined forwards against it; the articulations of the legs and the tarsi pale testaceous, the claw-joint rufo-piceous. Abdomen ovate.

Genus POLYRHACHIS, Smith.

1. *Polyrhachis bispinosus*, Smith, Cat. Hym. pt. vi. (*Formicidæ*), p. 74, 56.

Formica bispinosa, Oliv. Encycl. Méth. vi. p. 502, 60.

Latr. Fourm. 133, pl. iv. fig. 20.

Formica fungosa, Fabr. Syst. Piez. p. 410, 60.

Hab. Santarem; St. Paul (Brazil).

This is a well known ant in Brazil, the material of which it forms its nest furnishes an article of commerce used as tinder for lighting cigars, &c.

Sub-family PONERIDÆ.

Genus ODONTOMACHUS, Latr.

1. *Odontomachus hæmatodes*, Latr. Gen. Crust. et Ins. iv. 128.

Formica hæmatoda, Linn. Syst. Nat. i. 965, 17.

Hab. Para; Cayenne.

Genus PONERA, Latr.

1. *Ponera pedunculata*, Smith, Cat. Hym. pt. vi. (*Formicidæ*), 96, 46.

Hab. Rio.

Genus ECTATOMMA, Smith.

Ectatomma scabrosa.

E. fusco-brunnea; capite, thorace, abdomine, segmento primo rugosis.

Worker. Length $3\frac{3}{4}$ lines. Fusco-ferruginous, with the man-

dibles and antennæ bright, the flagellum more or less obscure; the head and thorax very coarsely rugose, the basal segment of the abdomen less coarsely sculptured; the sculpture running into striæ above the insertion of the antennæ; the eyes round and prominent; the mandibles finely aciculate, their inner edge smooth, edentate, with their apex acute. The thorax with an acute tooth on each side of the prothorax and metathorax; the scale of the peduncle rugose, erect and oblong, slightly rounded above; the second segment of the abdomen delicately striated, transversely giving it a silky appearance; the apical segments pale testaceous.

Genus PSEUDOMYRMA, Guér.

1. *Pseudomyrma cephalica*, Smith, Trans. Ent. Soc. (N. S.) iii. 168, 11, ♂ ♀ ☿.

Hab. Villa Nova (Brazil).

2. *Pseudomyrma flavidula*, Smith, Cat. Hym. pt. vi. (*Formicidæ*), p. 157, 15.

Hab. Santarem (Brazil).

3. *Pseudomyrma bicolor*, Guér. Icon. Règ. Anim. p. 427.

Hab. Columbia.

This species is very variable in colour; the typical form is "dull black, smooth; the mouth, mandibles, anterior border of the head and carina between the antennæ fulvous-red; the first node of the peduncle of the same colour, with a little spot of the same on each side of the second node." Amongst a series from Panama are individuals, black, with only the mandibles and anterior margin of the face fulvous-red; others have the mandibles, anterior margin of the face, thorax above and the peduncle and first node fulvous-red, with a dark stain at the base of the metathorax, extending more or less over the prothorax.

Pseudomyrma modesta.

P. pallide rufo-testacea, lævis; capite fusco; oculis nigris.

Worker. Length 3 lines. Pale rufo-testaceous, the head wider than the thorax; eyes very large, occupying nearly the entire side of the head, ocelli small, glassy-bright, and placed in a triangle on the vertex behind the eyes; the mandibles, anterior margin of the face and the antennæ pale rufo-testaceous. Thorax flattened above anteriorly, the front margin transverse, the lateral margins

acute; the prothorax paler than the metathorax; the femora and the tibiæ beneath slightly fuscous. Abdomen oblong, the petiole clavate, the second node pear-shaped; the abdomen shining, the rest of the body sub-opake; entirely destitute of hair.

Very like *Pseudomyrma nigriceps*, but without the spine on the petiole beneath as in that species; the petiole longer and more slender; the abdomen concolorous, whereas in *P. nigriceps* the apical segments are black.

The nest of this species was forwarded to me by Mr. Stretch; it consists of the large hollow thorns or spines of a species of *Acacia*; the spines are three inches long, tapering to a point from a broad base; the ants gnaw a small hole towards the point of the spine, the broad base then forms an admirable domicile for their young brood; there are no cells or divisions of any kind for the reception of the eggs or larva; the number of pupæ found in one nest was twenty-nine, and about twenty mature ants, all of these were workers; the pupæ are not inclosed in cocoons; these ants sting very violently.

Sub-family I. MYRMICIDÆ.

Genus MYRMICA, Latr.

1. *Myrmica molesta*, Say, Bost. Journ. Nat. Hist. i. 293, 6.

This species has been received from France, Germany, Austria, Brazil (Rio), Australia and N. America. I have reason to believe that it is a native of Brazil, and has been carried to most parts of the world in merchandize.

Hab. Brazil; N. America; S. America; Australia; Britain; France and Madeira.

Myrmica reticulata.

Operaria.—Sordide rubra, abdomine nigro; capite thoraceque reticulato; pedibus pallide rufo-testaceis.

Worker. Length 2 lines. Rufo-ferruginous, shining; the abdomen smooth, shining black, except at the extreme base and apex, which are pale rufo-testaceous. The inner margin of the mandibles rufo-fuscous, and armed with a row of small acute teeth; the eyes black; the head and thorax reticulated, the latter with two acute spines at the apex; the legs paler than the thorax, with the articulations of a slightly darker tint; the body sprinkled with short, erect, pale, glittering hairs.

This species is of the size and form of the British species *Myrmica acervorum*. Mr. Parfitt took specimens in a botanic garden at Exeter, imported probably with Brazilian plants.

Myrmica glaber.

Operaria.—Rufo-testacea, lævis, tota nitidissima, nuda; abdomine apice fusco-nigro.

Worker. Length $1\frac{3}{4}$ lines. Testaceous red, entirely smooth and shining; head wider than the abdomen, in some examples considerably so, and having a rather deeply impressed line which extends from the back of the head to the insertion of the antennæ, where it is faintly impressed; the mandibles armed with several black teeth; the club of the antennæ 2-jointed; the eyes small and black; the head anteriorly and the base of the abdomen paler than the rest of the body; the metathorax without spines.

Myrmica polita.

M. rufo-fusca, lævis, tota nitidissima, nuda; mandibulis, antennis pedibusque pallide rufescentibus.

Worker. Length $1\frac{1}{2}$ lines. Rufo-fuscous, highly polished and smooth; head rather large, oblong, widest in front; eyes very small; antennæ 10-jointed, the club 2-jointed. Thorax deeply strangulated in the middle, the metathorax without spines. Abdomen truncate at the base; the petiole rather long, the first node elevated above the second, its lateral appearance wedge-shaped; the second node globose. The mandibles, antennæ, articulations of the legs and the tarsi pale rufo-testaceous.

Sub-family ATTIDÆ.

Genus ŒCODOMA, Latr.

1. *Œcodoma sexdentata*, Smith, Cat. Hym. pt. vi. (*Formicidæ*), p. 183, pl. x. fig. 15.

Formica sexdens, Linn. Syst. Nat. i. 964, 14.

Hab. Cayenne; Surinam; Para; Rio; S. America; St. Vincent's.

Of this insect Mr. Strange writes, "Umbrella ant; these ants have very large companies; they form beaten tracks through the thickest herbage, along which two crowds passing in opposite directions may always be seen. The one burdenless, the other each carrying a piece of leaf. I have seen trees quite stripped of their foliage by these ants. What do they use the leaves for? The larger individuals appear to exercise a kind of authority over the smaller ones and to do much less work."

Sub-family 4. CRYPTOCERIDÆ.

Genus CRYPTOCERUS, Latr.

1. *Cryptocerus atrata*, Linn. Syst. Nat. i. 965, 16.

Hab. Monte Video; Rio Janeiro; Para; Quito; Cayenne.

2. *Cryptocerus minutus*, Fabr. Syst. Piez. p. 425, 5.

Family MUTILLIDÆ, Leach.

Genus MUTILLA, Linn.

Mutilla Araneoides.

M. nigra, capite parvo, supra lateritio-flavo; thorace antice plagâ triangulari, postice maculis duabus transversis lateritio-flavis; abdomine maculis duabus dorsalibus albis, lineisque variis transversis interruptis-albis, ornato.

Female. Length $6\frac{1}{4}$ lines. Black and pubescent; the head above, a triangular patch on the thorax in front and an ovate spot on each side of the metathorax reddish-yellow; the cheeks have a cinereous pubescence; the head is narrower than the thorax; the legs have a thin glittering silvery-white pubescence; the spines and calcaria black. Abdomen, an interrupted narrow band on the posterior margin of the basal segment, two large ovate spots on the second, and an interrupted band on the third and fourth segments, of yellowish-white pubescence.

Mutilla xanthocerata.

M. aterrima, antennis rubro-flavis scapo nigro, capite magno atro, thoracis dorso maculis duabus transversis, lineis duabus longitudinalibus albis; abdomine supra nigro maculis duabus medianis albis; lineâque albâ anticâ interruptâ, maculisque duabus oblongis albis prope apicem.

Female. Length 10 lines. Black, pubescent; the head large, sub-quadrata, the eyes round and prominent; the flagellum orange-red. Thorax not so wide as the head, slightly narrowed posteriorly, with three obtuse teeth on each side before the middle; an oblique transverse silvery-white macula on each side in front, nearly uniting in the middle, and a longitudinal narrow white line on each side of the metathorax, the posterior margin of which is white; the legs have a cinereous villosity, the tibiæ furnished with several short black spines, the calcariae at their apex pale testaceous. Abdomen: an interrupted silvery-white band on the basal segment, two circular white spots on the second segment, and a

broad interrupted white fascia on the third segment, which is continued beneath the abdomen; the lateral margins of the second segment beneath are silvery-white.

This is one of the largest and most handsome species in the genus. I cannot find that it has been previously described; it may possibly prove to be a local variety of *Mutilla eximia* of my own Catalogue of Fossorial Hymenoptera. It differs from the latter species in being larger, in not having golden pubescence on the face, in the scape being black and in the spots and markings being smaller or narrower; the teeth or spines on the sides of the thorax are smaller; still it may notwithstanding be nothing more than a local variety. *M. eximia* is from Bolivia.

Family POMPILIDÆ, Leach.

Genus POMPILUS, Fabr.

1. *Pompilus anceps*.

P. cæruleo-niger; abdomine iridescente; alis cæruleo violaceoque splendide micantibus, apice albis.

Female. Length 11 lines. Black; the head and thorax with a beautiful changeable blue silky pile; the six apical joints of the antennæ orange-yellow; the metathorax transversely striated; the wings blackish-brown, with bright violet iridescence in certain lights; their extreme apex milky-white; the tibiæ and tarsi thickly set with short stout spines. Abdomen with a splendid blue iridescence.

Genus PEPSIS, Fabr.

1. *Pepsis obscura*, St. Farg. Hym. iii. 490, 35.

Hab. S. America.

The insect from Panama agrees precisely with the description, excepting that the tips of the antennæ are yellow, which is not mentioned by St. Fargeau; still I am inclined to believe it is the same species, and probably the male of *P. elevata*.

Family SPHEGIDÆ, Leach.

Genus SPHEX, Linn.

1. *Sphex dorsalis*, St. Farg. Hym. iii. 347, 20.

Hab. Ega; Santarem; Cayenne.

Of the habits of this species Mr. Stretch says, "From the sandy embankments of the railway at Arpinwall, it constructs a long burrow perpendicularly into the hard sand. I saw it bring a grasshopper as large as itself, with great difficulty, to the entrance

of its burrow; laying it down, it retreated, apparently to see that all was ready, and then, re-emerging, seized the grasshopper and backed into its hold."

Genus MONEDULA, Latr.

1. *Monedula signata*, Latr. Gen. Crust. et Ins. iv. 100.

Vespa signata, Linn. Syst. Nat. i. 574, 14.

Hab. Brazil, S. America.

Group SOLITARY WASPS.

Family EUMENIDÆ, Westw.

Genus MONTEZUMIA, Sauss.

1. *Montezunia rufipes*, Sauss. Monog. Guêpes Sol. p. 89, 3,
pl. 15, fig. 1.

Hab. Brazil.

Genus ODYNERUS, Latr.

Odynerus productus.

O. niger, capite thoraceque flavo-guttatis, et rude punctatis; abdomine fasciis duabus flavis ornatis.

Male. Length $3\frac{1}{2}$ lines. Black, the head and thorax strongly punctured; the clypeus and a small spot above it, a minute one in the sinus of the eyes and another behind them, the scape in front and a spot on the mandibles, pale yellow; the flagellum fulvous beneath. The posterior margins of the prothorax, a spot beneath the tubercles, the tegulæ, post-scutellum, the metathorax behind and a spot on the anterior and intermediate tibiæ, yellow; the anterior tibiæ and tarsi ferruginous; the wings hyaline, with a dark fuscous stain in the marginal cell; a ferruginous spot on the tegulæ. Abdomen finely punctured, the first and second segments with a broad yellow margin, which is continued beneath; the second segment produced in the middle, forming a sharp angle or tooth; the following segments very narrowly bordered with yellow; the first segment entirely pale beneath.

Genus EUMENES, Latr.

Eumenes placidus.

E. niger, antennis subtus, prothorace, metathorace lateralibus, rufis; abdomine flavo-fasciato.

Male. Length $4\frac{3}{4}$ lines. Black; the antennæ ferruginous; the scape above and the flagellum in the middle above, fuscous; the clypeus, a minute spot above, another in the sinus of the eyes and

a narrow line behind them, yellow; the clypeus bidentate. Thorax, the prothorax and the metathorax at the sides, as well as the legs, ferruginous; a black spot on each side of the prothorax, its posterior margin narrowly yellow; the femora and tibiæ more or less fuscous above; the wings sub-hyaline, their anterior margin fuscous. Abdomen: the petiole ferruginous at the sides and apex; its apical margin, as well as that of the second segment and the middle of the posterior margin of the three following, yellow; the yellow margin of the second segment continued beneath the abdomen, which is ferruginous and has a dark stain in the middle of the second segment.

This species resembles the *Eumenes Uruguyensis* of Saussure and may possibly be its male.

Group SOCIAL WASPS.

Genus POLISTES, Latr.

1. *Polistes Canadensis*, Sauss. Mon. Guêpes Soc. p. 72, 32.
Vespa Canadensis, Linn. Syst. Nat. i. 952, 25.

Hab. North and South America; Brazil.

2. *Polistes annularis*, St. Farg. Hym. i. 522, 7.

Hab. North and South America; Brazil.

3. *Polistes versicolor*, Sauss. Mon. Guêpes Soc. p. 81, 44.

Hab. Brazil; Cayenne; St. Domingo.

Polistes modestus.

P. clypeo, mandibulis, antennarum basi, tibiis tarsisque anterioribus ferrugineis; oculorum orbitis, prothoracis margine posteriori, metathorace lineis duabus et segmentorum marginibus flavis.

Female. Length 6 lines. Black, the abdomen covered with a fine silky cinereous pile; the clypeus, mandibles, scape and four basal joints of the flagellum, ferruginous; a line on the lower portion of the inner orbits of the eyes and a line behind them pale yellow; the margins of the prothorax, the inner margin of the tegulæ, the post-scutellum and two longitudinal lines on the metathorax, yellow; the wings hyaline, the anterior margin of the superior pair slightly fulvous, with a fuscous stain in the marginal cell; the nervures pale ferruginous; the anterior tibiæ and all the

tarsi ferruginous, palest beneath. The basal segment of the abdomen with a narrow yellow border to its apical margin.

This species is closely allied to the *P. Acteon* and *P. liliaciosus* of Saussure's Monograph, but apparently distinct.

Genus POLYBIA, St. Farg.

1. *Polybia fuscicornis*, Sauss. Mon. Guêpes Soc. p. 210, 1 ;
St. Farg. Hym. i. 539.

Hab. Brazil.

2. *Polybia fasciata*, Sauss. Mon. Guêpes Soc. 182, 21.

Hab. Panama.

3. *Polybia fastidiosuscula*, Sauss. Mon. Guêpes Soc. 197, 39.

Hab. Brazil.

4. *Polybia metathoracica*, Sauss. Mon. Guêpes Soc. p. 198, 41,
pl. 25, fig. 1 (var. β).

Hab. Cayenne.

5. *Polybia pediculata*, Sauss. Mon. Guêpes Soc. p. 205, 50,
pl. 26, fig. 7.

Hab. Brazil.

6. *Polybia simillima*.

P. nigra sub-sericea, alis sub-hyalinis, marginibus anterioribus fuscis.

Female. Length $5\frac{1}{2}$ lines. Black and thinly covered with a fine silky cinereous pile; the face shining, the clypeus produced in the middle, the anterior margin being angulated; the antennæ black, with the apex beneath testaceous; the legs black, with the claws rufo-testaceous; wings sub-hyaline, the anterior margin of the superior pair dark fuscous. Abdomen petiolated, campanulate; the rest of the abdomen cordiform.

This species is very like *P. socialis*, but its mandibles are black, its thorax somewhat broader and shorter, and the first segment is broader and the petiole shorter.

Genus NECTARINA, Shuck.

1. *Nectarina analis*, Shuck. Cab. Cycl. Hist. Ins. p. 183.

Brachygaster analis, Perty, Del. An. Art. t. 28.

Hab. Brazil; S. America; Mexico.

Family ANDRENIDÆ.

Genus HALICTUS, Latr.

Halictus Hesperus.

H. capite thoraceque cupreo-nitidis, alis hyalinis, pedibus rufo-testaceis; abdomine nitido obscure ferrugineo.

Female. Length $3\frac{1}{4}$ lines. Head and thorax brassy, the head with tints of green, closely and finely punctured; the antennæ black, the flagellum fulvous beneath; the labrum and mandibles rufo-testaceous. Thorax shining, brassy on the disk, the metathorax green; wings hyaline, the nervures and tegulæ testaceous; the legs pale rufo-testaceous; the floccus on the posterior femora beneath, white. Abdomen shining and obscure fusco-ferruginous, the apical margins of the segments with pale pubescent fasciæ; beneath rufo-testaceous.

Family APIDÆ.

Genus CERATINA, Latr.

1. *Ceratina læta*, Spin. Ann. Soc. Ent. Fr. x. 138, 87.

This species has also occurred in Cayenne and at Ega.

2. *Ceratina punctulata*, Spin. Ann. Soc. Ent. Fr. x. 139, 89 (1841).

The specimens from Cayenne, described by Spinola, only differ from those from Panama in having a white spot on the labrum: I have little doubt of their identity.

3. *Ceratina eximia.*

C. capite thoraceque metallico-viridibus; abdomine purpureo, pedibus pallidis ciliatis.

Female. Length $4\frac{1}{4}$ lines. Head and thorax of a bright metallic green, and strongly and closely punctured; the flagellum obscurely rufo-piceous beneath; an oblong spot on the clypeus and a minute triangular one on each side, cream-coloured; the mesothorax with three longitudinal impressed lines in the middle, and an abbreviated one outside opposite the tegulæ; the wings sub-hyaline, the nervures and tegulæ ferruginous; the legs pale ferruginous, and thinly covered with cinereous pubescence; a minute spot at the apex of the anterior femora above, and a line on the tibiæ; also a minute spot at the extreme base of the posterior tibiæ, white. Abdomen bright purple, finely punctured, the three apical segments rugose.

2. *Ceratina placida*.

C. nigro-ænea punctata, clypeo macula alba ornato ; alis hyalinis.

Female. Length $3\frac{1}{2}$ -4 lines. Dark bronze colour, with tints of bright green on the head and thorax ; a triangular spot on the clypeus anteriorly, and a similar spot on each side of it touching the eyes, the latter sometimes continued up the inner orbit of the eyes, yellowish white ; a narrow line behind the eyes ; the head strongly and closely punctured ; the flagellum piceous beneath. Thorax strongly punctured, with a smooth shining space in the middle of the disk ; the mesothorax with three central smooth impressed lines, and an abbreviated one outside of them opposite the tegulæ ; the wings sub-hyaline, the nervures blackish ; the legs nigro-piceous ; a process in front of the anterior femora at their base, which is produced into an acute spine on each side. The abdomen strongly punctured, the three apical segments rugose ; beneath bright green. This species closely resembles, if it be not a local variety of, the *Ceratina punctulata* of Spinola, described in the "Annales de la Société Entomologique de France," 1841, p. 139.

Genus CHRYSANTHEDA, Perty.

1. *Chrysantheda nitida*, Perty, Del. An. Art. p. 148, tab. 28, fig. 8.

Genus EUGLOSSA, Latr.

1. *Euglossa analis*, Westw. Nat. Libr. xxxviii. p. 262, pl. 19, fig. 2.

Apis cordata, Linn. Syst. Nat. i. 955, 15 ?

This I believe is only a highly coloured and beautiful variety of the *E. cordata* ; every intermediate shade of colour occurs between specimens which are entirely green, and those with the abdomen of a fiery copper colour, the latter being the *E. analis* of Westwood.

2. *Euglossa cordata*, Latr. Hist. Nat. Crust. et Ins. iii. 384.
Apis cordata, Linn. Syst. Nat. i. 955, 15.

Genus TRIGONA, Jurine.

1. *Trigona amalthea*, Latr. Gen. Crust. et Ins. iv. 183.
Apis amalthea, Fabr. Syst. Piez. p. 371, 8.

2. *Trigona mellarius*.

T. nigra; antennis, mandibulis, scutello tarsisque ferrugineis, alis hyalinis.

Worker. Length 2 lines. Black; the head and thorax covered with strong confluent punctures; the face with a fine white downy pile; the mandibles, labrum and antennæ ferruginous. Thorax: the scutellum, tegulæ, tips of the femora and tibiæ, and the tarsi, ferruginous; the tubercles pale testaceous; the wings hyaline, the nervures rufo-fuscous; the scutellum with two pale teeth at its apex, and two pale minute spots at its base. Abdomen: smooth and shining; the apical margin of the second segment and the third and following segments more obscurely ferruginous; the apical segments covered with fine, short, pale golden pubescence; beneath obscure rufo-testaceous; the coxæ pale testaceous.

"A very large tree having fallen, it was cut in two to remove it; the inside was found to be quite hollow for many feet; the space thus left empty was completely lined with the nest of this small bee."

3. *Trigona laboriosa*.

T. nigra; capite lævi et nitido, antice pube argenteo vestito; thorace nitido, alis hyalinis, abdomine pallide rufo.

Worker. Length $2\frac{3}{4}$ lines. Head, thorax and legs black; the head very smooth and shining, the face and cheeks covered with a fine silvery pile; the antennæ rufo-testaceous beneath; the apex of the clypeus, the labrum and mandibles, more or less obscurely ferruginous; the vertex with some erect short black hairs. Thorax: smooth and shining, the disk with erect black hairs; the scutellum obscure rufo-testaceous; the metathorax smooth, shining, and rufo-piceous in the middle, the sides covered with cinereous pile; the wings hyaline, the nervures are rufo-fuscous at the base, and pale testaceous towards the apex of the wings, the stigma pale; the legs dark rufo-piceous, the tibiæ and tarsi densely covered with black pubescence; the legs are paler towards their base beneath, and the claw-joint of the tarsi also pale testaceous. Abdomen pale ferruginous, the base pale testaceous.

Genus SMIERA, Spin.

Smiera captiva.

S. flava, nigro-maculata, alis hyalinis, antennis fuscis.

Female. Length 3 lines. Yellow; the flagellum rufo-fuscous;

tips of the mandibles ferruginous; the head and thorax strongly punctured; a black vase-shaped outline on the disk of the mesothorax, and a black line on each side; a transverse black line at the base of the scutellum, the latter with a pear-shaped spot in the middle, and an angular spot at its lateral margins; the pectus black at the base of the coxæ, and an oblong black spot beneath the wings; the wings hyaline; the apex of the posterior coxæ, a brown spot on the femora above, and two on their sides below; the femora incrassate, and armed with seven black teeth beneath; the base and apex of the tibiæ reddish brown. Abdomen petiolated; the margins of the segments narrowly bordered with reddish-brown, widening into spots at the sides and in the middle.

GENUS LEPTOFÆNUS.

Head globose, deeply excavated above for the reception of the scape; antennæ 13-jointed, short and stout, shorter than the thorax, inserted in the middle of the face; the scape short, the two basal joints of the flagellum minute, the third joint rather longer than the scape, the 4—9 joints each in succession shorter than the preceding, the three apical joints minute, forming, as it were, a single compressed joint, but really composed of three. The thorax elongate; the prothorax prolonged into a neck; the wings without nervures, but with transparent traces of neuration very similar to that of the genus *Pelecinius*, the stigma distinct, the posterior margins of the wing fringed with short hairs; the legs elongate, slender, the posterior tibiæ thickened at their apex. Abdomen elongate, the first forming a petiole, the second longest; the ovipositor a little shorter than the abdomen.

This genus is formed for the reception of an insect which apparently unites in itself some of the characters of the genera *Fœnus*, *Megischus* and *Pelecinius*; it resembles the first in the shortness of its antennæ, *Megischus* in its globose head, and *Pelecinius* in the almost totally obliterated neuration of its wings.

Leptofœnus peleciniiformis.

L. niger, alis hyalinis venis obsoletis, tibiis posticis apicis dilatatis.

Female. Length 9 lines, of the ovipositor 5 lines. Black and shining; the head with a few transverse striæ on the vertex; the ocelli in a curve; the face thinly covered with short glittering pale pubescence. The thorax transversely striated; the wings colourless hyaline and iridescent; the anterior and intermediate

legs very slender; the posterior coxæ stout, elongate, and transversely striated; the tibiæ slender, with their apex slightly thickened and pubescent; the tarsi pubescent, the base of the joints ferruginous. Abdomen: the petiole transversely striated; the following joints are smooth, shining, and have a chalybeous iridescence; the valves of the ovipositor black, the ovipositor ferruginous.

Genus MEGISCHUS, Brullé.

Megischus niger.

M. niger, alis hyalinis, abdominis segmento primo transversim striato; valvulis ovipositoræ ante apicem annulo albo.

Female. Length $9\frac{1}{2}$ lines, of the ovipositor 11 lines. Black; head rugose in front, the vertex transversely striated, the cheeks smooth and shining. The thorax with large scattered punctures; the apex of the metathorax roughly punctured; the wings hyaline; the nervures black; the posterior femora with two stout spines or teeth beneath, and a number of minute ones between them. Abdomen: the first segment very finely striated transversely, the rest smooth and shining; the ovipositor broadly annulated with white a little before the apex.
